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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,394	05/25/2001	Nevenka Dimitrova	US 010265	5012

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EXAMINER

ZHOU, TING

ART UNIT	PAPER NUMBER
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2173

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,394

Applicant(s)

DIMITROVA ET AL.

Examiner

Ting Zhou

Art Unit

2173

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

BA HUYNH
PRIMARY EXAMINER

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The amendment filed on 3 March 2004 have been received and entered. Claims 1-38 are pending in the application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7, 9, 11-17, 19, 21-26, 28, 30-35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by the article entitled “Color SuperHistograms for Video Representation”, written by Dimitrova et al.

Referring to claims 1, 11, 21 and 30, Dimitrova et al. teach an apparatus, system, method and computer executable instructions comprising a visual summary controller capable of creating a visual summary of video material (page 316, Figure 1), wherein the visual summary controller is capable of extracting frame signatures (histograms) from keyframes of video material and capable of using the frame signatures to create superhistograms from the keyframes, and capable of using the frame signatures and superhistograms to create a visual summary of the video material (the superhistograms created from the frame signatures represent a visual summary of

the video content), as recited on page 314, right column, lines 11-25, page 315, section 2 and page 316, section 2.3; this is further shown in Figure 1.

Referring to claims 2, 12, 22 and 31, Dimitrova et al. teach the filtering of keyframes (merging of histograms into family histograms) and extracting frames signatures (computing color histograms) from the filtered keyframes before using the frame signatures (histograms) to create the superhistogram representing a visual summary of the video material (page 315, right column, section 2 and page 316, left column, section 2.3).

Referring to claims 3, 13, 23 and 32, Dimitrova et al. teach the use of superhistograms to cluster the filtered keyframes (the ordered merging of the family histograms to create the superhistogram), wherein the clustered keyframes (superhistogram) represents the visual summary of the video material, as recited on page 314, right column, lines 11-25 and shown in Figure 1.

Referring to claims 4 and 14, Dimitrova et al. teach the use of a histogram as the frame signature used to compute superhistograms (page 314, right column, lines 11-15).

Referring to claims 5, 15, 24 and 33, Dimitrova et al. the use of the L1 distance measure method, L2 distance measure method, histogram intersection method, Chi-Square test and Bin-wise histogram intersection method to computer the histogram difference (page 315, right column).

Referring to claims 6, 16, 25 and 34, Dimitrova et al. teach the selection of the most meaningful image for each superhistogram (the top n largest families) as the representative image (page 316, section 2.4).

Referring to claims 7, 17, 26 and 35, Dimitrova et al. teach the ability to select the family histograms (the top n largest families) to use to create the superhistogram used to create the visual summary (page 316, section 2.4).

Referring to claims 9, 19, 28 and 37, Dimitrova et al. teach the use of the visual summary obtained from the superhistograms to access at least a portion of the video material (classifying and searching in video archives), as recited on page 317, section 4.2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8, 10, 18, 20, 27, 29, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Color SuperHistograms for Video Representation", written by Dimitrova et al., in view of Wang et al. U.S. Patent 5,805,733.

Referring to claims 8, 18, 27 and 36, while Dimitrova et al. teach all of the limitations as applied to the claims above, they fail to teach the capability to retrieve a visual summary stored in a memory unit and causing the visual summary to be displayed in response to a user request. Wang et al. teach the summarization of video sequences similar to that of Dimitrova et al. In

addition, Wang et al. further teach the capability of letting a user select a visual summary (scene) for viewing, retrieving that visual summary from memory and displaying it in response to the user's request, as recited in column 2, lines 16-29 and shown in Figure 2. It would have been obvious to one of ordinary skill in the art, having the teachings of Dimitrova et al. and Wang et al. at the time the invention was made, to modify the video summarization scheme disclosed by Dimitrova et al. to include the retrieval and display of the visual summary in response to a user request, as taught by Wang et al. One would have been motivated to make such a combination to give users the flexibility to select which scenes to watch, saving them time from having to browse through all of the other irrelevant scenes.

Referring to claim 10, 20, 29 and 38, while Dimitrova et al. teach all of the limitations as applied to the claims above, they fail to teach the creation of new video material using the compact visual summaries. Wang et al. teach the creation of new video material (a collage) made up of representative frames for each compact visual summary, as recited in column 3, lines 53-57. It would have been obvious to one of ordinary skill in the art, having the teachings of Dimitrova et al. and Wang et al. at the time the invention was made, to modify the video summarization scheme disclosed by Dimitrova et al. to include the creation of new video material, as taught by Wang et al. It would have been advantageous for one to utilize such a combination in order to conserve processor time and storage space by utilizing the already existing visual summaries in the creation of new visual materials.

Response to Arguments

4. Applicant's arguments filed on 3 March 2004 have been fully considered but they are not persuasive.

Applicant asserts that Dimitrova et al. do not disclose or suggest a controller which is capable of extracting frame signatures from keyframes, and capable of using the frame signatures to create superhistograms from the keyframes, and capable of using the frame signatures and the superhistograms to create a compact visual summary. However, it is disclosed in the Dimitrova et al. reference that the method for computing superhistograms is capable of extracting frame signatures (histograms) from keyframes of video material and capable of using the frame signatures to create superhistograms from the keyframes, and capable of using the frame signatures and superhistograms to create a visual summary of the video material (the superhistograms created from the frame signatures represent a visual summary of the video material, or scenes), as recited on page 314, right column, lines 11-25, page 315, section 2 and page 316, section 2.3; this is further shown in Figure 1. The Dimitrova et al. reference teaches extracting color histograms for individual shots (key frames) of video content. Histograms are a type of frame signature, as is even disclosed in the applicant's application, shown in the limitation recited in claim 4. Therefore, the extraction of color histograms is one way of extracting frame signatures from key frames of video material. The color histograms are used to create family histograms, which are used to create superhistograms. Therefore, the frame signatures are used to create superhistograms. The frames signatures and superhistograms are used to classify and analyze video data and is therefore a visual summary of the video material. The Dimitrova et al. reference thus anticipates the subject invention.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ting Zhou whose telephone number is (703) 305-0328. The examiner can normally be reached on Monday - Friday 8:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached on (703) 308-3116. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 22, 2004


BA HUYNH
PRIMARY EXAMINER